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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Tadayuki Kameyama

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WASHINGTON, DC 20036

EXAMINER

EMPIE, NATHAN H

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

11/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/522,618

Applicant(s)

KAMEYAMA ET AL.

Examiner

NATHAN H. EMPIE

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,8,9,11-18 and 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8,9,11-18 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date 10/2/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/2/08 has been entered. Claims 1, 8-9, 11-18, and 31 are currently pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 8-9, 11-18, and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "abruptly" in the recently amended matter of claim 1 is a relative term which renders the claim indefinite. The term "abruptly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term abruptly could mean a span of a few seconds, tens of seconds, hundreds of seconds, minutes, etc. The applicant has directed the examiner's attention to pg 3 line 3 to pg 4 line 1 of the specification for support of this amendment, wherein the specification states: "That is, when a polyvinyl alcohol (PVA) film that is a hydrophilic

polymer film is impregnated in an aqueous solvent in a swelling bath, generally, swelling occurs abruptly within 15 seconds to 25 seconds." Such a recitation is not an explicit special definition of the term abruptly, but rather can be considered exemplary. For purposes of examination the limitation both instances of the limitation "swelling of the polymer film occurs abruptly" in claim 1 will be interpreted as "swelling of the polymer film occurs within 15 seconds to 25 seconds", as provided as an example in applicant's specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 8, 14-17, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemoto et al (JP 10153709A; hereafter Ikemoto).

Claims 1, 17: Ikemoto teaches a method of producing a polarizing film (Abstract and [0014 – 0020]), comprising the steps of: allowing a hydrophilic polymer film (polyvinyl alcohol, (PVA) based film) to swell wherein the polymer film is conveyed by means of a guide roll (guide rolls pictured as small circles in Fig 1) so as to be impregnated in an aqueous solvent (water) in a swelling bath (swelling tank, (10)) (Fig 1, and [0008], [0016]);

dyeing the polymer film using a dichroic substance (film passes through a dyeing tank (12) containing an iodine solution; Fig 1, and [0017]);

and stretching the polymer film (stretching tub (14); Fig 1, [0018]);

wherein in the swelling step, at least a first guide roll and a second guide roll are arranged in the swelling bath (Fig 1), and when the polymer film is impregnated in and allowed to travel in the aqueous solvent (Fig 1, [0008], [0016]),

Ikemoto further teaches that this process of forming a polarization film is significantly concerned with the prevention of wrinkle formation, noting that when a PVA resin film swells too much, wrinkles occur, and that if an unstable film traverses through a series of zigzagging guide rollers such wrinkles can be worsened [0008][0033].

Ikemoto also teaches the general conditions of result effective variables such as the length of time the film is submerged in the swelling bath (abstract, [0030-0033]).

Ikemoto doesn't explicitly teach the polymer film is brought into contact with the first submerged guide roll within a time up to when swelling of the polymer film occurs within 15 seconds to 25 seconds and further is brought into contact with the second guide roll after the swelling of the polymer film has occurred within 15 seconds to 25 seconds or the specific time conditions of claim 1. Although Ikemoto does not explicitly teach the swelling of the polymer film occurs within 15 seconds to 25 seconds ("abruptly"), the examiner asserts that as Ikemoto teaches a hydrophylic polymer film (PVA) impregnated in an aqueous solvent (water) in a swelling bath, that one of ordinary skill would expect, at the least, for the film will abruptly swell within 15 to 25 seconds; since where the claimed and prior art products are identical or substantially identical in

structure or composition, or are produced by identical or substantially identical processes, a prima facie case of obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977) (Further applicant's own admission "when a hydrophilic polymer film is impregnated in an aqueous solvent in a swelling bath, generally, swelling occurs abruptly within 15 to 25 seconds" (Remarks of 10/2/08, pg 8, first full paragraph)). Further, Ikemoto provides an example of total dipping time as in the range of 4 to 6 minutes (abstract, [0011]), but does not explicitly teach wherein an arbitrary point on the film is impregnated in the swelling bath for a total length of time of from 63 to 120 seconds. But, as Ikemoto teaches a method of obtaining wrinkle free polarization films, while describing general problems involved with swelling and the transport of swelled films, as well a range of film submergence time; it would have been obvious to one of ordinary skill in the art to alter a length of time of impregnation as well as altering the length of time up to when the submerged film is brought into contact with a first and second submerged guide rolls based on the amount of swelling in the polymer film, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claim 8: Ikemoto further teaches the polymer film is impregnated in the swelling bath for a time in the range of 4 to 6 minutes (abstract, [0011]).

Claim 14: Ikemoto further teaches the temperature of the swelling bath lies in the range of 30 – 40°C (abstract, [0011]).

Claim 15: Ikemoto teaches that the polymeric film swells in the swelling bath, as well as being pulled along guide rollers, so inherently when the film material swells it is stretched.

Claim 16: Ikemoto teaches the method of claim 1 (described above), but does not explicitly teach wherein with respect to a length of the polymer film before being subjected to the swelling step, a stretch ratio of the polymer film in the stretching treatment is in a range of 1.5 to 4.0 times. A "stretch ratio" as described by applicants disclosure (pg 13 lines 9 – 30) would appear to be dependant upon the time the polymeric film is submerged in the swelling bath, as described in the rejection to claim 1 (above), the submerging time is a result effective variable, therefore it would have been obvious to one of ordinary skill in the art to alter a length of submerging time, correspondingly altering the "stretch ratio", to achieve a range of 1.5 to 4.0 times, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claim 31: Ikemoto further teaches wherein the aqueous solvent in the swelling bath is water (see, for example, [0016]),

wherein the dyeing step is conducted in a dyeing bath containing dichroic substance (iodine solution) and potassium iodide (the coloring tank contains an iodine solution further comprising potassium iodide, see, for example, [0017]), and

wherein the stretching step is conducted in a stretching bath containing boric acid ((stretching tub (14); Fig 1, contains boric acid, see, for example, [0018]).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemoto as applied to claim 1 above, and further in view of Sanefuji et al (US 2002/0001700 A1).

Ikemoto teaches the method according to claim 1, and further teaches that the final thickness, following drying, of the PVA film produced from the polarizing film process is about 20 – 35 microns ([0020]). Ikemoto is silent as the starting PVA film thickness; therefore Ikemoto does not explicitly teach the PVA film before being subjected to a swelling treatment has a thickness in a range of not more than 110 micron. Sanefuji teaches that the typical thickness range of a PVA film (pre-swelling) is preferably between 40 to 120 microns, as when the average thickness is less than 20 micron, stretching break occurs, and when the average thickness is over 150 microns stretching irregularity occurs in monoaxial stretching in producing a polarization film ([0027]). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have selected a pre-swollen PVA film thickness of between 40 to 120 microns, as taught by Sanefuji, for the PVA film thickness in the polarization process taught by Ikemoto as Ikemoto is silent, and values outside of this taught range would lead to breaking or irregular stretching of the polarization film. Although Ikemoto in view of Sanefuji doesn't specifically teach the PVA film before being subjected to a swelling treatment has a thickness in a range of not more than 110 micron, it would have been obvious to one of ordinary skill in the art at the time of invention to have selected a thickness range of not more than 110 microns, since in the case where the

claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemoto as applied to claim 1 above, and further in view of Harita et al (US 2001/0024322 A1; hereafter Harita).

Ikemoto teaches the method according to claim 1, wherein the hydrophilic polymer film is a PVA based film ([0007]), but is silent as to specific chemistries of the PVA film. Harita teaches producing a polarization film from a PVA based film via processes including stretching, dyeing, fixing, etc. (abstract, [0049]). Harita specifically teaches adding 10 parts by weight of glycerin to 100 parts by weight of a PVA preparation solution (~9 wt %) ([0062]). Harita further teaches that when producing the PVA film it is advantageous to incorporate plasticizer such as glycerin as it is suitably used for improving the PVA films stretchability ([0034-0035]). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated ~9 wt % of glycerin into a PVA polymer film, as taught by Harita, in the process taught by Ikemoto as the addition would improve the stretchability of the PVA based film.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemoto as applied to claim 1 above, and further in view of Burger (US patent 3,492,185; hereafter Burger).

Ikemoto teaches the method of claim 1 (described above), but is silent as to what type of guide rolls are used in the process. Using bent roll as guide rolls is well known in the art as evidenced by Burger (col 6 lines 45 – 51). Burger further teaches that a bent roll can aid the reduction of longitudinal wrinkles in a web product (col 6 lines 45 – 51). Ikemoto teaches that the purpose of their invention is to obtain wrinkle free polarization sheets ([0008], [0011]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected specific types of guide rolls, such as a bent roll, for any guide roll(s) of the method taught by Ikemoto, for the purpose of reducing longitudinal wrinkles in the film.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemoto as applied to claim 1 above, and further in view of Kondo (JP 2000-147252; hereafter Kondo).

Ikemoto teaches the method of claim 1 (described above), but is silent as to what type of guide rolls are used in the process. Kondo teaches a method for producing a polarization film, where the hydrophilic polymer film is contacted by rubber spiral guide rolls, arranged as 1 or 2 or more of the guide rolls, arranged besides or within a bath liquid (Fig 1, [0014-0016]). Additionally Kondo teaches that the motivation for using spiral rubber covered rolls is that they prevent the generation of fractures, and blemishes to the film [0004]). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated a spiral roll as a guide roll, as taught by Kondo, for a guide roll other than the first guide roll in the

process taught by Ikemoto as the incorporation of multiple spiral rolls will lead to lower occurrence of film fracture and blemishes.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemoto as applied to claim 17 above, and further in view of Tanaka et al (US patent 5,071,906; hereafter Tanaka).

Ikemoto teaches the method of claim 17 (described above), where the dichroic solution is an iodine solution ([0017]), but Ikemoto does not explicitly teach the iodine solution contains at least two organic dyestuffs. Tanaka teaches a method of producing polarizing films where the addition of a dichroic dye solution is applied to a PVA film (col 5 line 55 – col 6 line 16). Further Tanaka teaches that iodine and dichroic dyes (plural) may be used together in order to control the hue (col 6 lines 10 – 13). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have added a plurality of dichroic dyes, as taught by Tanaka, to the iodine solution taught by Ikemoto in order to control the hue of the dye solution.

Response to Arguments

Applicant's previous amendment of claim 12, filed 8/4/08, with respect to the 35 USC 112 second paragraph rejection has been fully considered and is persuasive. The 35 USC 112 second paragraph rejection of claim 12 has been withdrawn.

Applicant's arguments filed 10/2/08 as to the 35 USC 103 rejections have been fully considered but they are not persuasive.

In response to the applicant's argument (pg 7 to 8 of remarks) that Ikemoto is silent regarding the presence of absence of guide rolls, the examiner asserts that Ikemoto does teach the presence of guide rolls (see, for example, Fig 1, depicted as submerged small open circles). Further the applicant argues that Ikemoto is silent as to the length of time required for a PVA resin film to be brought into contact with the first guide roll, and "Ikemoto fails to provide any teaching or guidance regarding the timing of swelling of a PVA resin film is impregnated in an aqueous solvent in a swelling bath, let alone a time range in which the swelling of the PVA resin film occurs abruptly". Further, the applicant has asserted that the presently claimed invention is directed toward preventing wrinkles from forming on the polarizing film (see, for example, bottom of pg 8). In response, the examiner asserts that prior art Ikemoto similarly is concerned with preventing wrinkle formation (see, for example, [0008, [0033]), and further teaches that the degree of swelling of a polarization film must be managed throughout the process ([0009]). Further, the examiner maintains that Ikemoto teaches the general conditions of result effective variables such as the duration of submersion, bath concentration, bath temperature, etc. and their influence on the film submerged in the swelling bath (abstract,[0011], [0030-0033], Table 1) and one of ordinary skill in the art would appreciate that variables influencing the duration of submersion and degree of swelling (such as duration of specific guide roll contact and degree of polymer film saturation state in relation to the guide rolls) would be result effective variables as well. As such, it would have been obvious to one of ordinary skill in the art to alter such conditions as desired, since it has been held that where the general conditions of a claim are

disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

The applicant has directed the examiner's attention to Ikemoto [0007] (bottom of remarks pg 7). The examiner asserts that applicant is misinterpreting the teachings of this passage of Ikemoto. Just previous to the passage cited by the applicant, Ikemoto states: "However, in the swelling **process of the above-mentioned** PVA resin film, the degree of swelling...". As the preceding paragraphs "above" [0007], reside within the "Description of the Prior Art" section, then the properties of the "process of the above-mentioned" system would be properties directed to prior art systems, and not the Ikemoto invention. Therefor the applicant's arguments based on [0007], are not convincing, and the examiner asserts that the Ikemoto sets out to overcome the problems of the prior art (see, for example, [0009]), including specifically teaching the importance of managing the degree of swelling of a polarization film throughout processing ([0009]).

Ikemoto does not explicitly teach the swelling of the polymer film occurs within 15 seconds to 25 seconds ("abruptly"), but by the applicant's own admission: "when a hydrophillic polymer film is impregnated in an aqueous solvent in a swelling bath, generally, swelling occurs abruptly within 15 to 25 seconds" (Remarks of 10/2/08, pg 8, first full paragraph) the examiner asserts that as Ikemoto teaches a hydrophillic polymer film (PVA) impregnated in an aqueous solvent (water) in a swelling bath, that one of ordinary skill in the art would expect, at the least, for swelling to occur within 15 to 25 seconds; further since where the claimed and prior art products are identical or

substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of obviousness has been established. In re Best, 195 USPQ 430, 433 (CCPA 1977).

As to the dependent claims, they remain rejected as no separate arguments are provided.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN H. EMPIE whose telephone number is (571)270-1886. The examiner can normally be reached on M-F, 7:00- 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. H. E./
Examiner, Art Unit 1792

/Katherine A. Bareford/
Primary Examiner, Art Unit 1792